

NEWSLINE

Published weekly for employees of Lawrence Livermore National Laboratory

Friday, December 10, 2004

Vol. 29, No. 48

Activity discovered in 'gene deserts'

By Charlie Osolin

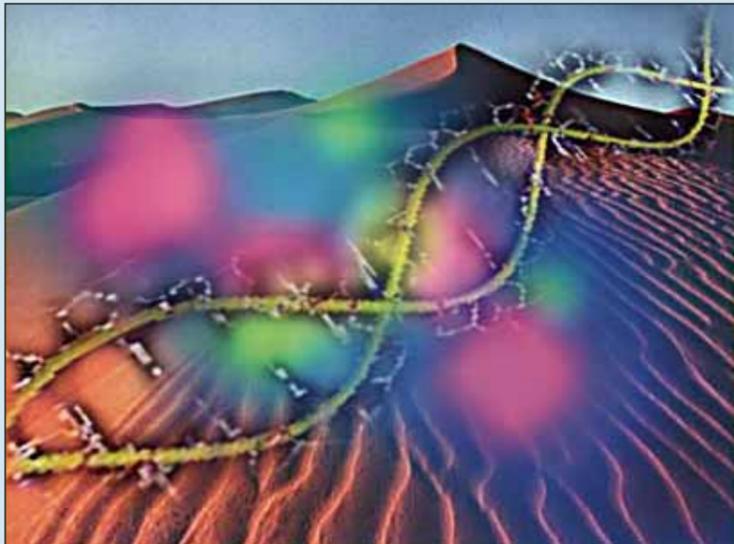
NEWSLINE STAFF WRITER

Like the famous living deserts of the Southwest, the so-called "gene deserts" in our DNA are teeming with activity. The trick is knowing where to look for it.

A new roadmap to the location of DNA segments that are significant in medical, biological and evolutionary research could emerge from studies published Thursday by Laboratory scientists and their colleagues. The work is reported in the online version of the journal *Genome Research*.

Gene deserts are long stretches of DNA between genes that were once thought to have no biological function, and were dismissed as "junk DNA." As scientists probe deeper into the DNA's double helix, however, they are discovering that many of these "non-coding" segments actually play an important role in regulating gene activity.

Research last year at the Department of Energy's Joint Genome Institute (JGI) and Lawrence Berkeley National Laboratory



PAUL PREUSS/LBNL

Laboratory scientists are finding signs of life in areas called gene deserts, originally thought to be full of "junk DNA."

(LBNL), for example, has shown that gene deserts contain DNA sequences that can switch genes on and off over considerable distances along the DNA molecule.

Paradoxically, the same JGI and LBNL scientists were recently able to remove giant chunks of gene desert DNA — whole chapters in the "book of life" — from laboratory mice with no apparent effect on the animals. Many of the deleted sequences are shared by mice and

See **GENE DESERTS**, page 7

National Ignition Facility sets new safety milestone of 4 million injury-free hours

By Bob Hirschfeld

NEWSLINE STAFF WRITER

The National Ignition Facility's (NIF) emphasis on safety is continuing to pay dividends.

Next week, NIF will celebrate its fourth year without a lost work day due to an on-the-job injury. As of Nov. 30, NIF personnel have worked 4,091,085 consecutive safe hours.

The project's Total Recordable Rate (an industry standard benchmark that measures the percentage of

See **NIF**, page 7

2003 environmental monitoring report for Laboratory released

Environmental monitoring of Laboratory operations during 2003 shows no adverse impact to public health or the environment. The basis for this determination is described in the Environmental Protection Department's 2003 Environmental Report.

The report assesses the impact of LLNL operations on the environment for the past year.

Overall, environmental evaluations generally show continuing low pollutant levels. This demonstrates the Laboratory's continuing commitment to control of potential contaminants from current

See **ENVIRONMENT**, page 5

The 2004 HOME Campaign closes out 30th anniversary fund-raising effort today

The 2004 HOME Campaign comes to a close today. As of Thursday, the campaign had raised just under \$1.5 million with more than 3,000 employees donating to local charities.

Though HOME officially ends today, electronic donations will continue to be processed through Tuesday, Dec. 14.

Employees filing donations by the close of business today (Dec. 10) are eligible for the grand prize, a wine country tour with Black Tie Limousine.

"Employees have once again shown their great generosity and community spirit through donations and by giving time to charitable projects," said Al Moser, HOME Campaign chair. "I would like to thank all those who worked so hard to make this 30th anniversary campaign such a success."

See page 5 for additional HOME coverage.



Bring HOME the gold.

Claire Max to shed light on black holes

Claire Max will deliver a Director's Distinguished Lecturer Series presentation, "A Sharper Image: Black Holes in the Cores of Nearby Galaxies," at 3:30 p.m. Monday, Dec. 13, in the Bldg. 123 auditorium.

Max is a physicist at the Lab's Institute for Geophysics and Planetary Physics, a professor of Astronomy and Astrophysics and associate director for the Center for Adaptive Optics at UC Santa Cruz.

Max's talk will explore what has been learned about black holes in the cores of two nearby galaxies, using adaptive optics at the 10-meter Keck II telescope. The advent of adaptive optics on the largest ground-based astronomical



Claire Max

telescopes makes it possible for observers on the ground to compensate for the blurring caused by turbulence in the Earth's atmosphere, and in some cases, to "see" as well as space-based observatories.

Recent observations indicate that mergers between galaxies play a critical role in galaxy evolution and in the formation and feeding of central black holes. Max will describe observations of two merging disk galaxies and of a powerful radio galaxy that clarify how galaxy mergers influence black hole activity.

For further details see the DDLS Website: <http://lsto.llnl.gov/DDLS/index.html>



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Indian heritage**
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**The gift of
re-cycling**
— Page 4



**Reptile residents
of Site 300**
— Page 8



LAB COMMUNITY NEWS

Weekly Calendar

Technical Meeting Calendar, page 4

Tuesday
14

Today is the last day to donate to the Engineering **Holiday Card Fund**. Donate the money you would otherwise spend on greeting cards to a fund that will assist low-income and home-bound seniors. Donations will be forwarded to the Senior Services Center of Livermore and may be made in cash or by check (payable to the Senior Services Center). For more information, contact Lara Page, 2-1951; Kristin Mercer, 3-3443, or Emma Horcabas, horcabas1, 3-4755.

The presentation scheduled for today on **influenza** by Bill Pereira, MD, Health Services Department, has been postponed until January due to scheduling conflicts. Future presentation date(s) will be advertised in *NewsOnLine* and *Newsline*. For questions, call Amy Cashin at 3-9977.

Thursday
16

Glenn Mara, former deputy director of Operations, will be honored for his 33 years of service to the Laboratory at a retirement celebration today at 3 p.m. in the Central Cafe. Employees are welcome to attend. RSVP to Tracey Barnes at 3-9060 or barnes22@llnl.gov by Dec. 13.

...
The LLNL/Sandia Bible Study Groups will conduct an **old-fashioned Christmas sing-a-long** today at 12:05 in Bldg. 543 auditorium. Special guest will be recording artist Mazella Doerlich. Food and drink are not allowed in the auditorium.

...
A **Fidelity counselor** will be available today and Dec. 20 to assist with assessing the current state of retirement accounts, learning how to diversify, planning asset allocation and identifying income strategies. Fidelity Investments Mutual Funds are available to UC's workplace retirement plan participants in addition to the UC managed investment pools. If you would like to set up a consultation with a Fidelity representative, call 800-642-7131. When calling, be sure to specify that you are an LLNL employee.

Up
&
Coming

Site 300 will be closed Dec. 22, 23, and 24 for the Christmas holiday and Dec. 29, 30, and 31 for the New Year holiday.

Send calendar information by Wednesdays
noon to Linda Lucchetti,
lucchetti1@llnl.gov

RETIREES' CORNER

John Stroud (W Division 1984) and his wife, Hildy Pehrson, have returned from a September tour, "A Scandinavian Odyssey." They stopped first in Helsinki, Finland, then on to Copenhagen, Oslo, Bergen, Stockholm and an add-on stopover in Reykjavik, Iceland. Among the many highlights, they enjoyed a dinner in the home of an English teacher in Denmark, luncheon with university students in Stockholm and a concert at the actual home of Edvard Grieg. Their travel modes included modern train, overnight ferry, vintage train, day ferry and an all-day bus tour in Iceland's starkly beautiful countryside. They visited the windswept hillside location of the "Althinge," a form of parliament based on law and the first founded in northern Europe, and then went for an evening swim in the "Blue Lagoon." E-mail: dearoldad@aol.com

Mike Goodby (Site 300, Water Dept., Maintenance, 1999), and his wife, Roni, just returned from a seven-day western Caribbean cruise, between hurricanes Ivan and Jeanne. They flew to New Orleans, La., where they spent the night in the French Quarter at a lovely hotel and had a fantastic dinner. The next day, they boarded the Carnival Cruise Ship Conquest for their seven-day cruise, with stops in Montego Bay, Jamaica and Cozumel, Mexico. The cruise was supposed to have stopped in the Grand Cayman Islands also, but was not able to due to Hurricane Ivan. They swam, snorkeled and partied in Montego Bay at a private resort, and shopped until they dropped in Cozumel, while enjoying the beautiful weather and scenery.

Mike and Roni loved the ship's breathtaking decor and wonderful food and entertainment. Also, the scenery from their balcony coming into each port was great. They met wonderful people and had such a great time on the ship that they plan on going back in a few years with some really nice people they met. They highly recommend a cruise. Since retirement, they reside

in Klamath Falls, Ore., which they love very much. E-mail: micron@uci.net

Glynn and Adele Pence (both Plant Engineering, 1990) just got back from a month on the road in the Southwest. Their main goal was the Balloon Fiesta in Albuquerque, a fantastic display of colors and shapes in the sky. If you haven't seen it, it should be put high on your to-do list. This was the second time they had gone and it seems to only get better. On the way down, they stopped in Sedona and, as always, enjoyed the scenery there. It is a little pricey to shop there. After Albuquerque, they stopped in Santa Fe for four days and enjoyed kicking around in that area. From there, they went to Durango and took the narrow gage train to Silverton and back; the best scenic train trip they have taken yet. Mesa Verde was their next stop to see the cliff dwellings. They are really unique and you have to wonder what happened to the people who built them — they were really talented. Moab was their last stop and one of their favorite places to visit. Arches and Canyon Land National Park are there along with Dead Horse Point, roads along the Colorado River, and its specialty, mountain bike trails that just won't quit. All in all it was a great trip, not to mention the hail storm damage they experienced. E-mail: agpence@juno.com

Sally Short (Mechanical Engineering, 1993) is relocating to Sacramento after spending several years in Cambria. She was recently visiting Livermore and saw several old friends: **Darlene Horne** (Mechanical Engineering 2002), **Dorothy Johnson** (2003) and **Jane Olson** (1993).

Please send any input to Jane or Gus Olson. E-mail: AugustO@aol.com or JaneRubert@aol.com. Phone: (925) 443-4349, or snail mail address: 493 Joyce Street, Livermore, CA 94550.

IN MEMORIAM

Mark S. Jones

Mark S. Jones of Manteca died Oct. 27. He was 52.

He was born in Porterville, Calif. on Nov. 19, 1951, and was raised in the Salinas Valley. Jones served in the U.S. Navy from 1977 to 1983 as an electronics technician. He graduated from ET "A" School with honors. He provided quality assurance for data/voice communication systems and he trained personnel in medium/high-speed data communications. He also served aboard the USS Chandler where he trained and supervised technicians in the maintenance of surface search radar, radio navigation and satellite navigation systems.

Jones began his LLNL career in 1984 in Electronics Engineering's Fusion Energy Systems Division (FESD) as an electronics engineer technologist working on the Mirror Fusion Test Facility (MFTF) project. In recognition of his abilities and desire to continue learning, Jones was awarded an LLNL Undergraduate Scholarship in 1986 and attended the University of the Pacific. He earned a bachelor's degree in computer engineering in 1988, graduating with high honors. In his honor, there is a plaque in the School of Engineering at UOP. Jones was a member of Eta Kappa Nu and Tau Beta Pi.

In 1988, he became an electronics engineer in the Engineering Research Division (ERD) and supported O Division as the system integrator for the probe electrical systems and controls software. He also contributed to the program as a design engineer for equipment required for ground-based testing and computer communications. In 1998, Jones was transferred to the Defense Sciences Engineer-

ing Division (DSED) as the lead electronics engineer for the MicroSat Technologies Development Project (MTDP). In 2002, he became a group leader in DSED.

Jones is survived by his wife, Valerie of Manteca; children, Mark and Matthew of Modesto; his grandson, Ian Jones of Pensacola, Florida; and his brothers, Doug Jones of Salinas and Stephen Jones of Manteca.

A memorial service will be held in the spring.

Newsline

Newsline is published weekly by the Internal Communications Department, Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

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Photographer: Jacqueline McBride

Designer: Julie Korhummel, 2-9709

Distribution: Mail Services at LLNL

Public Affairs Office: L-797 (Trailer 6527), LLNL, P.O. Box 808, Livermore, CA 94551-0808

Telephone: (925) 422-4599; Fax: (925) 422-9291

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Web site: <http://www.llnl.gov/pao/>

AROUND THE LAB



Government's relationship with Indian tribes is unique

By Gordon Yano

NEWSLINE STAFF WRITER

The U.S. government's relationship with the country's American Indian tribes goes back to the 1700s and 1800s, when the government began entering into treaties with today's federally recognized tribal nations. Those treaties, and subsequent court decisions, established that the tribes are "unique dependent nations" within the United States, with sovereignty status characterized by a special relationship with the federal government, like that of a "ward to his guardian."

"Those treaties and decisions established that the U.S. government is a trustee of Indian rights 'charged with moral obligations of the highest responsibility and trust,'" said Steve Grey, a Laboratory employee currently serving as the Department of Energy's director of Indian Affairs.

"They were very important. They defined the relationship between the federal, state and Indian governments."

Grey spoke to a Laboratory audience last month as part of the Lab's Native American Heritage Month celebration. A Navajo from Kayenta, Ariz. in the Navajo Nation, Grey came to the Laboratory in 1989 as an engineer in the Energy Directorate. He eventually became head of the Lab's American Indian Program, and two years ago accepted the additional position at DOE.

Grey explained that the federal government, through the treaties and court actions, promised the tribes security, sovereignty, religious freedom, health care, education, monies and confirmation of certain rights, including self-government, fish-

ing and hunting rights, and jurisdiction over their own lands.

In exchange, the tribes gave up more than 90 million acres of land, often without added compensation.

The treaties did reserve certain lands and rights for the tribes, including reservations for occupation (trust lands), ceded lands (which reserved grazing, hunting, fishing and gathering rights in territories beyond the reservations), off-reservation reserved rights (which granted water and subsistence rights) and traditional use areas.

"This unique legal relationship between the tribes and the federal government is protected by Congress and the courts," Grey said. "It's a great responsibility because of the large Indian landbase out there. Approximately 15 percent of the nation's natural resources are located on Indian land. Through this responsibility comes the DOE's — and its labs' — role in Indian affairs."

DOE — and other federal agencies — must consider the effect its activities have on Indian lands, resources and protected rights, Grey explained. The department interacts with a num-



Steve Grey

ber of the country's 562 federally-recognized tribal nations on a government-to-government level, consistent with laws and policies.

"We work to establish good working relationships with the tribes, always looking for meaningful opportunities for productive tribal participation in DOE planning and decision-making.

"It is important to remember that the promises made to the tribes in the treaties were made in honor. Article Six of the U.S. Constitution holds that treaties 'are supreme

law of the land.'"

To be personally effective in his job, Grey said he must gain the trust of the tribes he works with. Sometimes, that can be very difficult when distrust has built up over generations.

"Being a Native American myself, I know their problems, I know what life on a reservation is like," Grey said. "It's my job to inform them on the responsibility that the Department of Energy, as a federal agency, has to protect Indian lands and resources."

Personal electronics in Lab's Limited Areas must be approved

Employees are reminded that all privately owned electronics, with the exception of certain entertainment items, are prohibited within all Limited (classified) Areas. Privately owned AM or FM radio receivers and compact disk or tape players (not recorders) may be approved for placement and use in classified areas provided the equipment is first inspected and inventoried by a qualified LLNL Security Department technical security technician. A security seal will be affixed to the item to indicate that it has been approved.

Once an item is authorized for use in a specific area, it must remain in that area and not be

removed except for short time frames; e.g., a portable CD player used while jogging. During such absences, it must be under the direct personal control of the owner and then returned directly to the classified area. If, for some reason such as repair or use at home, the item is removed from the classified area, it must be re-inspected by a qualified technical security technician before it can be returned to the classified area. Because the approval is for a specific area, the Physical and Technical Security Group must be advised if the item is relocated to a different Limited Area location.

Privately owned transmitting equipment, computers, modems, tape recorders, telephone equipment, electronic organizers (PDAs), and televisions are not permitted in Limited Areas. Any exceptions require issuance of a Controlled Items Permit by the LLNL Security Department.

Further guidance regarding the use of electronics at LLNL can be found at <http://www-r.llnl.gov/securityprogram/items/electronics.html>. To obtain authorization to bring one of the aforementioned items into a classified area, contact your program security representative or the Physical and Technical Security Group, 2-9191.

Stay grounded in electrical safety for a happy holiday

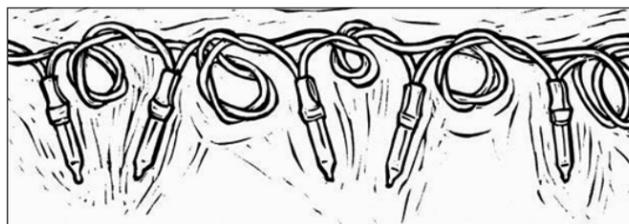
The holiday season is a most joyful time for many people. Yet celebration can turn into disaster if electrical safety practices are not followed.

"The use of decorative lights on houses and trees, both inside and outdoors presents electrical dangers that we do not see in other seasons," says Keith Gershon, Hazards Control electrical safety engineer.

Each year, emergency rooms treat about 1,300 people for injuries related to holiday lights. Also, accidents largely caused by the misuse of holiday lights result in some 400 Christmas tree fires each year, causing death, injury and millions of dollars in damage.

Gershon offers these electrical safety tips that you can apply to make your holiday celebration happy and safe:

- Indoors or outside, use only lights that



have been tested for safety by a recognized testing laboratory such as Underwriters Laboratories (UL).

- Check each set of lights, new or old, for broken or cracked sockets, frayed or bare wires, or loose connections, and discard damaged sets.

- Use no more than three standard-size sets of lights per single extension cord. Never run extension cords under rugs.

- Never use electric lights on a metallic

tree. The tree can become charged with electricity from faulty lights, and a person touching a branch could be electrocuted.

- Fasten outdoor lights securely to trees, house walls, or other firm supports to protect the lights from wind damage. Use only insulated staples to hold strings in place, not nails or tacks. Or, run strings of lights through hooks (available at hardware stores).

- Turn off all lights when you go to bed or leave the house. The lights could short out and start a fire.

- Plug outdoor electric lights and decorations into circuits protected by ground fault circuit interrupters (GFCIs). Portable outdoor GFCIs can be purchased where electrical supplies are sold. GFCIs can be installed permanently to household circuits by a qualified electrician.



NEWS YOU CAN USE

Holiday drives go full cycle to brighten the season

Engineering Holiday Card Fund program under way

Engineering has a long history of helping the less fortunate in the community. This year, employees again have the opportunity to aid low-income and homebound seniors through the Engineering 2004 Holiday Card Fund. To support the fund, simply donate the money you would otherwise spend on greeting cards to help needy seniors. Your donation will be forwarded to the Senior Services Center of Livermore, who will use the money to purchase food certificates and baskets for needy seniors. Donations may be made in cash or by check (payable to the Senior Services Center) and are due by Dec. 14.

For more information, contact Lara Page, page9@llnl.gov, 2-1951; Kristin Mercer, mercer8@llnl.gov, 3-3443; or Emma Horcabas, horcabas1@llnl.gov, 3-4755.

Brighter Holidays in need of tricycle and bicycle donations

Brighter Holidays is sponsoring more than 100 families this holiday season. Bicycle and tricycle donations are being accepted — many children ask for their first bike through this program and some adults use



JACQUELINE MCBRIDE/NEWSLINE

Xavier Cabrales checks a newly donated bike in Bldg. 435. More than 40 bicycles have been donated for refurbishment by the Cycletrons.

bikes to get to and from work. If you have "repairable" bikes and/or tricycles to donate, contact Xavier Cabrales, 2-7448. He will make arrangements for the drop off of the bikes. Anyone requesting bicycles or tricycles for their family must contact Cabrales. Members of the LLNL Cycletrons Club have volunteered to repair

bikes.

For further information or if you'd like to adopt a family, call retiree, Betty Klino, 443-0642, or nklino@hotmail.com, or Karen Rosenberg, 2-8551.

Toys for Tots collected at Lab fire stations

The U.S. Marines Toys for Tots Christmas drive is collecting toys at the Laboratory's two fire stations through Dec. 16. New unwrapped toys may be dropped into one of the collection bins located on the west side of the Bldg. 323 fire station. Toys will be picked up by the Marines and distributed by Dec. 20. If necessary, a volunteer will pick up toys from buildings here on site. For more information, contact Eddie Dwyer at 3-5201, pager #08024, or Amy Snyder, 2-5194.

Recovery program looking for donations and volunteers

Dove's Landing Ministries Christian Recovery Program is looking for donations of food, furniture (especially twin beds), bedding, clothing, kitchen supplies and volunteers for various areas. If you would like to donate or volunteer once or on an ongoing basis, contact Debra Mulvey, 3-8119 or Ginny Santos, 3-6753.

Technical Meeting Calendar

Friday
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INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH

"A Semi-automatic System for Application-level Checkpoint/Recovery (CPR)," by Keshav Pingali, Cornell University. 10 a.m.,

Bldg. 451, room 1025 (property protection area). Contact: Martin Schulz, (CASC) 3-6498, or Leslie Bills, 3-8927.

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS

"Electromagnetic Models of Ultrarelativistic Outflows," by Roger Blandford, KIPAC, Stanford. Noon, Bldg. 219, room 163. All attendees need to be badged. Contact: Wil van Breugel, 2-7195, or Sharon Taberna, 3-6290.

Monday
13

N DIVISION SEMINAR

"ATLAS Detector Heavy Ion Physics Program," by Helio Takai. 10:30 a.m., Trailer 2128, ballroom. Contact: Jennifer Klay, 2-4058, or Annette Cook, 2-7856.

Tuesday
14

RADIATION DETECTION CENTER

"Gamma-Ray Astronomy with TIGRE," by Allen D. Zych, Institute of Geophysics and Planetary

Physics, UC Riverside 11 a.m., Bldg. 151, room 1209 - Stevenson Room - uncleared area. Contact: Ron Wurtz, 3-8504, or Christie Shannon, 3-6683.

COMPUTATION DIRECTORATE/ INTEGRATED COMPUTING AND COMMUNICATIONS DEPARTMENT

"Scalable Line Dynamics in ParaDiS," by Vasily Bulatov, Chemistry and Materials Science. 10 a.m., Bldg. 451, room 1025. Contact: Jean Shuler, 3-1909.

2004 PAT POSTDOC SYMPOSIUM

The symposium will feature presentations and posters from PAT postdocs. The poster session begins at noon in Bldg. 123, conference room A. Postdoc presentations begin at 1 p.m., Bldg. 123 auditorium. Contact: Andrew Williamson, 2-8285.

Wednesday
15

INTEGRATED COMPUTING & COMMUNICATIONS DEPARTMENT/MACINTOSH TECHNICAL SEMINAR SERIES

"LabVIEW Test Executioner," by Buck Smith of Cal-Bay Systems Inc. Test Executioner is a LabVIEW software framework for configuring and running sequences of LabVIEW routines, using VI server to call VIs dynamically.

Cal-Bay has deployed this software to provide test and measurement solutions on Macintosh, Linux and PC platforms, and is currently implementing a system at Apple that is used for design validation testing of Macintosh motherboards. Smith will also give an overview of DAQ-mx Base, a new driver for NI products for the Macintosh. 10:30 a.m., Bldg. 543 auditorium. Contact: Duane Straub, 2-9774, or straub1@llnl.gov.

INSTITUTE FOR SCIENTIFIC COMPUTING RESEARCH

"Numerical Study of Coexistence of Superconductivity and Ferromagnetism," by Alan Kyker, UC Davis. 10:30 a.m., Bldg. 451, room 1025 (property protection area). Contact: Francois Gygi, (CASC) 2-6332, or Leslie Bills, 3-8927.

The deadline for the next Technical Meeting Calendar is noon, Wednesday.

Send your input to tmc-submit@llnl.gov. For information on electronic mail or the news-group llnl.meeting, contact the registrar at registrar@llnl.gov.

Drawing winners

Left to right: Rachelle Jeppson, who won the Hilton Pleasanton Hotel Saturday-night stay with champagne brunch, 2004 HOME Campaign Chair Al Moser, and Kay Gilbert, who won the Peets Coffee mug and chocolates.

MARLEEN EMIG/CHEMISTRY



HOME directorate participation statistics

Directorate	Total employees	No. of contributions	Amount donated	Percent participation
Director's Office	153	106	72,674	69
Administration & Human Resources	337	205	69,858	61
Biology & Biotechnology Research	217	83	27,069	38
Chemistry & Materials Science	496	224	120,853	45
Chief Financial Officer	103	76	21,149	74
Computation	1032	410	206,632	40
Defense & Nuclear Technologies	361	152	78,679	42
Energy & Environment	292	118	46,463	40
Engineering	2053	638	324,823	31
Laboratory Services	1243	387	108,531	31
National Ignition Facility (NIF) Programs	201	102	38,972	50
Nonproliferation, Arms Control & International Security	233	98	55,109	42
Physics & Advanced Technologies	349	198	84,491	57
Safeguards & Security	362	65	16,176	18
Safety & Environmental Protection	742	332	119,015	45
S/L Vendor	—	—	44,272	—
S/L Vendor matching funds	—	—	44,272	—
Retirees	44	44	10,790	100
Others	36	36	5,195	100
Totals as of Dec. 9	8,242	3,274	1,495,025	39
Goal for the 2004 HOME Campaign			\$1.6 million	

ENVIRONMENT

Continued from page 1

operations and compliance with regulatory requirements.

For example, radiological doses to the most exposed member of the public from LLNL operations in 2003 are estimated at 0.04 millirem per year. This potential exposure is many thousands of times lower than the dose from radiation naturally and normally present in the environment.

Monitoring results from specific environmental media also show extremely low pollutant levels.

Air is monitored for radionuclides at various locations on the Livermore site and Site 300, throughout the Livermore Valley and in the Tracy area. Concentrations of all monitored radionuclides and beryllium at all locations were well below levels that would endanger the environment or public health. For example, the highest median concentration of plutonium for all sampling locations at both the Livermore site and Site 300 was only 0.009 percent of the federal standard.

Emissions of nonradioactive, hazardous

and toxic air pollutants from Laboratory operations in 2003 also were low.

In 2003, the maximum tritium activity measured in off-site drinking water was less than 1 percent of the regulatory maximum contaminant level (MCL). Gross alpha and gross beta radioactivity measurements also were well below regulatory levels of concern. Shallow groundwater in localized areas beneath Site 300 contain volatile organic compounds, tritium, nitrate, freon, perchlorate and depleted uranium. These present no current health risks because these waters are not used as a water supply source.

In 2003, as in past years, most analyses of on-site soil samples did not detect any nonradiological potential "constituents (contaminants) of concern."

Radiological results were unchanged from very low levels of previous years. Elevated concentrations of depleted uranium continue to be found at locations within Site 300. Findings are within the ranges seen in the past.

In general, off-site monitoring for tritium in vegetation and foodstuffs showed low values not significantly different from those over the past few years. As usual, there was slightly more tritium in samples taken near the Livermore site than was

found at more distant locations. Potential ingestion dose estimates were well below regulatory levels of concern, even when organically bound tritium was taken into account.

Progress in other environmental efforts

Groundwater treatment facilities at the Livermore site have processed more than 8.5 billion liters of groundwater and more than 1.4 million cubic meters of soil vapor since 1989. More than 1,550 kilograms of contaminants were removed during treatment in that period.

Since treatment began at Site 300, about 977 million liters of groundwater and 4.3 million cubic meters of soil vapor have been treated. About 234 kilograms of contaminants have been removed from soil and groundwater.

Total LLNL routine and non-routine waste diverted from landfills in 2003 was more than 26,502 metric tons. The 2003 waste diverted includes five tons of toner cartridges, 278 tons of paper and 27 tons of batteries.

The Site Annual Environmental Report is available on the Web at <http://www-envirinfo.llnl.gov/> along with other LLNL environmental information. Call 4-4026 with any questions about Laboratory environmental impacts.



AUTOMOBILES

1997 Thunderbird, perfect condition in and out. Very low miles, cassette, all power. Well maintained. Must see to appreciate. 510-582-2938

1973 - Mazda MPV, 140K mi, 6 cyl, all power options, well maintained, great commute & family car, original owner - \$2300.00 415-543-3643

1992 - Toyota Corolla. 180K miles. Runs great. Blue Book private party shows \$1695. Needs windshield so asking \$1300. 925-606-0260

2002 - VW Passat 4dr-sedan, 1.8L Turbo, 35k miles, warranted to 2006, auto all, custom chrome wheels, many extras, cell 209-814-4064 MINT COND \$15,250 209-832-2056

1994 - Mustang GT convertible, AT, AC, white with tan top, 108k miles, very good condition, \$6500 OBO 925-449-0140

2000 - Tan Chev Activan, 21,600 miles, Automated Ramp, Hand controls, Lock mechanism on drivers side to secure power chair. Radio & cassette player \$25k 510-792-5484

2003 - Hyundai Elantra GT 19,000K Miles w/ balance of 5-yr/60,000 mile warranty. Manual 5-speed, leather interior, loaded. Must sell \$12,000.00 Call today 925-625-6106

2000 - 4wd Nissan Xterra, fully loaded. Excellent condition. Mileage=46K. Transferable warranty. \$16,400 with warranty. 925-360-6557

2003 - Mitsubishi Eclipse GS, 4Cyl. 2.4 Liter Auto w/ Sportronic Trans, AC, CC, PVW&D, Sun and Sound pkg. 29K mi. Asking \$14,200 obo. 209-832-0474

1965 - Classic 1965 Thunderbird, 390, runs good, interior great cond, straight, needs paint. \$5000 obo 925-449-1340

1995 - Saturn, SL2, excellent condition, maroon, power sunroof, ac, ps, ABS pb, AM/FM stereo, cruise control, remote locking, 91K miles, \$3200. 925-443-1279

1999 - Mercedes E320, 3.2 litre V-6, Excellent condition, Sun Roof, CD Changer, Auto and manual Shift, White, 68,000 mi., \$22,500 OBO 209-603-9295

1973 - Plymouth Sattelitte Sebring. Black 2 DR hardtop. V8, 4 SPD trans, headers, 4 barrel carb. Reliable and fun. Leave a message for Matt. \$5500 925-784-2844

1997 - Beautiful, well maintained Thunderbird. Very low miles, excellent condition in and out. Extended full 3 year warranty. 510-582-2938

2003 - Jetta GL-white w/ blk int., auto trans, am/fm/cd, pwr wnd, keyless entry, 29 MPG, great commuter, 49K mi, \$14,000 obo 209-380-1953

1998 - GMC Jimmy 83k miles lthr int tow pkg cd new tires battery ex condition \$7000 925-513-3538

1988 - Toyota Corolla LE, 186K Reliable and runs well New CD/Radio and tires \$1200. 925-980-7924

AUTOMOBILE ACCESSORIES

Snow cable chains, used once - 1 mile, \$40 (paid \$60) Fits LR78-16LT, LT215-70R17.5, 30x9.50-15LT, 31x9.50-15LT, 34x9.50-15LT 925-606-0234

Hitch mounted cargo carrier, 22 inches x 56 inches. Made of superstrong polymer construction. Fits 2 inch receiver. Brand new. Paid \$60. \$40. 925-648-0671

Truck tire 205x75x15 new on wheel \$75. Snow tires 2 each, 13 or 14 inch size \$30 pair. 925-735-6002

BICYCLES

NISHIKI 10 speed womens bicycle, 27 inch alloy wheels, 19 inch frame size, good condition \$50.00 925-443-7752

BOATS

17.5ft Fisher FS 60hp mariner, rmt tilt & trim, walkthru windshield, 24v trolling mtr, 2 fishfinders, pedestal seat, seats 6 swim step. \$6100, 925-872-6111

CAMERAS

Nikon F-100 body only. (Black) Excellent condition. Asking \$479.00 650-348-8872

ELECTRONIC EQUIPMENT

Sony 20inch TV with remote \$150, Onkyo hi-end turntable, great condition with cartridge \$100. Offers accepted. 415-543-3643

Epson Stylus Color 880 printer, Windows or Mac, USB or parallel, self-test checks out well. \$20. 925-443-5525

CLASSIFIED ADS

eMac Apple Computer 1.25GHz PowerPC/G4 i512MB SDRAM i80GB Ultra drive iCombo CD/DVD iUS Keyboard/Optical mouse - 3 months old & under warranty/ \$750 925-373-8625

Video Games (used) for Playstation2: Dragonball-Z Budokai and Dragonball-Z Budokai-2 w/strategy guide. \$15 each or best offer. 925-447-1360

Home Theatre. Harman Kardon Sig. 2.0 Pre/Pro DD5.1, DTS. \$375/obo. Carver 5ch amp. AV-505 80w rated, 100w act./150w peak \$325/obo. \$600 both. 209-825-4809

Packard-Bell home PC. 100 mhz, 82mb RAM, 1.6 Gb Hard drive, Windows 95. 15 in. mon. \$75 obo. 408-296-7637

15GB IPOD. Brand new, still in vacuum sealed plastic. \$300 OBO Leave a message 925-784-2844

GIVEAWAY

Free: Louvered folding door set, 78"Hx48"W. Also 12"x81" wood closet shelf & pole. 925-837-8626

Mitsubishi 25 inch color television. Swivel wood case. 18 years old. Good Condition. 925-829-3226

Roomba Pro Elite Robotic Floor Vac. Has traveling problem, but otherwise in working order. Repair, experiment with, or use for parts. 925-443-5138

Almost a give-away! Approx. a quarter cord of firewood (almond?). \$25. You haul away. In Tracy. 209-832-2790

Kitchen Aid dishwasher. Clean-no rust, no leaks, no charge. Works perfect. 925-846-3943

HOUSEHOLD

HON vertical 2-drawer file cabinet, light gray, excellent condition. \$60. 925-449-4296

SEARS MAYTAG PLUS 18.5 cu. ft. Top Freezer Refrigerator, 2 YRS. OLD Mfr. model #MTB1956, WHT, 67-1/4IN. X 28-7/8IN. \$300. 925-447-4370

3 piece, wrap around desk w/ hutch, gray & black, good condition, moving so I must sell ASAP. \$250.00 OBO 925-890-6370

Remodeling sale: clothes washer & dryer, dishwasher, duvel oven, cook-top (Jenn-Air), fridge (Sub-zero), microwave, and oak bedroom set. 925-449-5514

Peg Perego Pliko stroller, Dk Blue, great condition, \$100. Large Little Tykes folding picnic table, \$25. 925-294-9022

4 Breuner chairs with arm rest, like new \$60 for set of 4 or best offer. 415-543-3643

6 piece Queen bedroom set oak color includes; bookcase headboard, nightstand, 4 drawer chest, dresser w/mirror, armoire, frame, box spring \$500/OBO. 209-599-1955

Refurbished Kirby vacuum cleaner with attachments. \$50 925-820-3048

Antique Oak Armours, 3 to choose from. \$350 ea plus Antique Oak secretary. Located in Manteca. I can email photos to you. 209-606-6445

50s era electric range Norge Mfg. by Borg Warner, free standing, white, very clean inside and out, works well. \$70.00 or best offer. 925-447-3965

Vaughan-Basset Entertainment Center Armoire. Light oak, 2 drawers, 2 doors, tv shelf, vcr storage, 74x48x24. Brand new in packaging. \$525.00 OBO 925-449-9167

Tray Tables, solid wood, set of 4 with stand, Early American style with walnut finish. \$50 Evenings 925-447-6450

Trampoline 22foot. The kids do not use it anymore. Only 3 years old and in great shape. \$300 I can deliver within 25 miles of Tracy. I have pics. 209-833-7149

Electric lift reclining chair, great condition \$500 510-538-7444

GE Profile gas dryer. Almost new - used only a few months. White. \$150 OBO 925-443-8580

Washer. Sears Kenmore, heavy duty, mint condition. \$100 925-373-6255

Christmas Craft Boutique/Saturday, December 4th @ Joe Mitchell School, 1001 Elaine Avenue, Livermore, Noon to 5:00 p.m. Great holiday gifts! 925-455-5245

Washing machine, super capacity, only used for 1 year. \$100.00 925-456-3029

Amana glass cooktop, GE spacemaker microwave, Maytag 24in double selfcleaning oven. All less than 15 yrs old, excellent cond. \$100 each 925-449-9294

Waterbed Mattress, Cal.King with heater, like new, no holes. \$650bo 209-823-9309

Rectangular glass table seats six with or without chairs, marble bakers rack, custom bar stools, decor changes priced to sell quickly. 925-516-8925

2- 46x71 double paned windows w/3in. plantation shutters. internal white grid. great condition. \$200ea or \$350 both. 925-606-6310

MOVING! MUST SELL EVERYTHING IN EVERY ROOM! Furniture, electronics, housewares, more. Call to see if I have what you are looking for. In Livermore. 925-339-1652

46inch x 35inch wooden eating table with 4 chairs. Good condition, \$200 925-606-0882

Brand new, Kohler portrait light series, self-rimming sink in white. \$75.00 925-606-6515

Blue leather couch - \$75. Rattan swivel rocker & footstool with custom denim cushion - \$50. Classic wooden rocking chair - \$50. 925-245-0915

LOST & FOUND

Lost at bldg. 191 or between 191 & 132 \$100.00 in 20.00 on the morning of 11-30-04 Please contact me at me work phone 4-5868 510-886-6294

I lost my glasses while I was going to bldgs 111,315,170,155 and 132N on 11/17/04 at 2pm. If found, please call 3-8299. 925-455-5812

MISCELLANEOUS

Antique mahogany Secretary with original finish, seven feet high. \$600 OBO. Large Classic Oak rolltop desk \$900 OBO. Complete collection of Danbury Mint Hummel plates. All 12 in original boxes for \$250. Call 449-7888

Cargo carrier, hitch mounted, 22 inches x 56 inches. Polymer construction. Fits on back of vehicle w/2 inch receiver. Paid \$60. New in box. \$40. 925-648-0671

Snow cable chains, used once - 1 mile, \$40 (paid \$60) Fits LR78-16LT, LT215-70R17.5, 30x9.50-15LT, 31x9.50-15LT, 34x9.50-15LT 925-606-0234

Kenmore washer and dryer (like new) \$450 Whirlpool side by side refrigerator \$350 Futon w/ black cushion \$200 925-980-0923

Simplicity 7 series vacuum cleaner. Brand new in packaging. Comes with 5 yr warranty, extra bags, hepa filter and attachments. \$225.00 OBO. 925-449-9167

Evenflo infant 5pt. harness car seat, wood high chair, Graco open top automatic swing. Great condition. Each item \$45. 925-837-1770

Dolls for Sale: Antique German dolls, Madame Alexanders, Barbies, too many to list. Must sell. Great Christmas gifts! 925-447-2096

Video Games (used): Starfox Adventures (GameCube) and Grand Theft Auto III (Playstation2), \$15 each/BO. 925-447-1360

Black Futon-\$75, Oak coffee table-\$50, end tables \$25 ea, pine end tables-\$25ea, computer-e-machine W/printer, like new-\$80 cell 925-784-0603 925-447-7088

18in Obsession Telescope. Like New, with Lasermax collimator, finder, telrad, shroud, and wheel handles. \$4000 209-839-2212

Dry bar, light oak, shaped in a J, good condition, \$300obo 209-823-9309

SF 49ers vs. Buffalo Dec. 26th 2 tix @ face value \$64/ea. UR, Sec 38 209-599-9942

exterior door (36x80in). opens left to right. w/3in white vinyl plantation shutters. great condition. \$100 925-606-6310

DragonBall GT, entire DVD collection, excellent condition, all episodes (15), make offer. 925-292-0348

New drain pipe four inch, flex, \$30, Air compressor 1 cyl as is \$50, Platform scale 140lbs. cap. \$40. 925-735-6002

Homemade Christmas Goodies in reusable Christmas containers. Pecan Caramel Clusters, Rocky Road, Fudge, Snowball cookies. Prices vary. 209-239-6016

Pokemon and Yu-gi-oh! cards. Over \$300 worth! Only \$50 for all! 209-832-2790

25 drawer stacking file cabinet with 2 pull-out boards, 5 sections. Dated 1955 \$250.00 925-447-0428

Classic metal patio furniture, partial set that is in need of refinishing. Chair and love seat. Make offer. 925-606-6515

MOTORCYCLES

82 Yamaha MX100, Great beginners bike! Looks good runs great. Very Reliable \$550 209-836-3481

2004 - Honda EX400 Quad, Yellow, <20 hours. 831-636-6788. 831-524-1388

2003 - Yamaha YZ85, Low hours, well maintained, Renthal bars, new tires, FMS silencer, \$2300, OBO. 925-447-0546

1999 - Suzuki sv650 8000 miles excellent

cond. \$4000.00 925-443-3467

1985 - Honda VT1100C Shadow. Runs great, good condition. \$2,600. 925-456-3010

MUSIC INSTRUMENTS

PIANO, upright, antique, circa 1890, \$300. 209-607-3816

PETS & SUPPLIES

Rescued kittens need loving forever home. Please consider adopting one or even two! Vaccinated and spay/neutered. \$75 adoption fee 925-980-3035

If you love kittens and are interested in providing a temporary foster home until we can find forever homes, please call me 209-833-0607

Double yellow Amazon parrot, with cage. \$1500/BO. For more info, please call 925-803-7627

Australian Shepherd Puppies. AKC registered blue merles and black tris born 10/5 ready to go home anytime. \$450 and up. 209-824-2394

AKC White Lab Stud looking for female for breeding AKC white/yellow only. Male English show bloodlines. Pick of litter. 209-983-8372

RECREATION EQUIPMENT

Skis-mens- Rossignol good condition-\$45. 925-447-8415

Treadmill, Vitamaster Premier Pro 2.5, speed and incline programmable. Great deal at \$75.00 925-371-0507

Soloflex with butterfly and leg-extension add-ons. Perfect condition always garaged. Fight the holiday pounds NOW!! \$400 (\$1500 new) 209-814-8904

1990 Wilderness 5th wheel trailer, 21.5 ft, great condition, self-contained, A/C-heat, CD player, many extras, \$4,500 obo 925-989-5364

1986 El Dorado Mirado motorhome. 29 feet, full kitchen and bath, sleeps 6. A/C, storage. \$10,000. OBO. Will accept reasonable offers. 925-456-3010

1972 Jeep CJ-5 lifted, engine solid, smog-exempt, needs body work. \$2500/OBO. 209-456-6947

Portable basket ball hoop. Water or sand base. Great shape. \$30.00 925-606-6515

Bun & Thigh Roller, exercise trainer. New condition. \$35.00 925-606-6515

RIDESHARING

Express your commute, call 2-RIDE for more information or visit their website.

Tracy - Wanted car/vanpool. I work 5, 8 hour days and am willing to adjust my work schedule to join a car/vanpool. 209-833-6398, ext. 2-3981

Modesto - Vanpool needs rider. Meets at Home Depot on Carpenter Road and leaves in am at 6:35. Leaves Lab at 4:45pm. 209-576-0217, ext. 2-7459

Orinda - Carpool from Lamorinda seeks 4th driver/rider. Meets at El Nido and Charles Hill in Orinda near St. Stephens+Hghwy 24. Lab hours 8am-4:45pm. 925-253-0498, ext. 2-9823

Modesto - 8 to 4:30 work schedule. Captain chairs, reading lights, \$125 per month minus transit pretax. Save more if you would like to help drive? 209-521-9047, ext. 2-5177

El Cerrito - Berkeley Vanpool has openings for full time or casual riders. M-F 7:45 am to 4:30 pm work schedule. 510-524-5769, ext. 3-7995

SERVICES

Licensed Livermore daycare provider has an immediate opening. Loving, nurturing environment. Ages 2 months to 4 years. 925-606-0697

SHARED HOUSING

Livermore - Room for rent. Clean person. Pvt bath, use of kitchen, laundry and Pool. No pets/no smoking. Deposit. Share utilities. \$600 mo. 925-989-4131

Livermore - Room for rent in great house. 2 bedroom 2 bath plus office and pool. No pets/no smoking. Share utilities. \$850.00/month 925-963-5126

Livermore - unfurnished master bedroom and bath Apt.close to lab.Pool,Spa,Tennis Courts and indoor laundry.Avialable now for \$625.00 per month 925-454-9649

Tracy - Room for Rent - 3bd/2bath house. \$600/month + 1/3 utilities + deposit. 209-835-8249

See complete classified ad listings at <https://www.ais.lnl.gov/newsline/ads/>

Discovery Bay - Golf Course Home; Spacious Bedroom w/private bath; Garage parking; No Pets 925-437-4297

Tracy - Room, Bath & Garage in Gorgeous 5 bedroom home, Pool/Hot tub - inside laundry,full privileges, excellent freeway access. \$850 includes utilities 209-830-7272

TO TRADE

Anyone want to trade size 1 prom dresses? Our dresses have been worn less than 8 hours but ALL our friends have seen them. 209-823-0976

TRUCKS & TRAILERS

2002 - Chevrolet Silverado 1500 Extended Cab Short Bed 4x2, Red, A/C, AM/FM/CD, 58,000 miles, \$16,400 OBO 209-521-7702

1968 - Ford f 250 pickup. Granny 4 speed, dana 60 rear end and 360 v8. Has some fender rust through. Runs rough.Will need to be trailered. \$400 209-368-4286

1993 - GMC Jimmy, 4 door, power everything, leather, a/c, clean body, needs tune up, tow pkg, roof rack, \$2500 OBO. 209-833-7358

1972 - Jeep CJ-5 lifted, engine solid, smog-exempt, needs body work. \$2500/OBO. 209-456-6947

VACATION RENTALS

Midway (Park City), Utah - Furnished Townhouse with garage for nightly rental (3 min). Sleeps 8. 15 min to Deer Valley lift. Gorgeous views. Pix avail. 866-707-7653

Cozy mountain cabin near Arnold. 4 bedr, 2 bath, fully equipped kitchen, warm wood burning stove. Sleeps 10-12. Snow fun!! 925-245-1114

Soooo cute beach cottage in Santa Cruz. 2 bedr, 2 bath, fully equipped kitchen, spa. 4 blks from ocean. Near harbor. 925-245-1114

Soda Springs/Donner Summit, Classic A frame, 2BR/1BA+Loft, sleeps 8 Walk to Royal Gorge 5 min to Sugar Bowl \$250 wknd,\$550/week call for availability 209-836-3481

Maui, HI - Kahana Reef oceanfront 1BR/1BA condominium. Beautiful two-island view, oceanside pool, and BBQs. LLNL rates for year-round reservations. 925-449-0761

Tahoe Keys - 3 bdrm, 2.5 bath house, fenced yard, great views of water and mountains, \$195 per night, call for details 925-376-2211

Perfect location for skiers! Tahoe cabin for rent 2 blocks from Heavenly. Sleeps approx 8 adults. \$500/wk, \$200/wknd. 925-240-1615

Solana Beach/Del Mar - Oceanfront condo, deluxe 2 br., 2 1/2 ba., fully equiped, tennis, pools jacuzzi, gated and covered parking, near San Diego attractions 925-443-2271

Kona Hawaii - Kona Billfisher, RCI resort of international distinction. 1 bedroom, 1 bath, fully equipped kitchen, available march 15 - april 13, \$500 per week. 925-634-4831

SOUTH LAKE TAHOE - 3Bedroom 2Bath Chalet, comfortably furnished, all amenities,close to all skiing, Pre-christmas openings,RESERVE NOW FOR HOLIDAYS/SKIING! 209-599-4644

WANTED

Accept no substitute for counterfeit awareness training

The newly published ES&H Document, Document 41.3 Suspect/Counterfeit Items (Section 4.0 Training), contains references and changes to training requirements. The document contains the following new requirements:

- HS5955 Suspect Counterfeit Item Awareness Training is an institutional training requirement (ITR). It is a lecture course that is required for associate director facility managers (ADFM); facility managers (FM); senior purchasing managers; superintendents/group leaders from PE Maintenance & Operations, Construction, Fleet, UTEL (electrical and mechanical utilities), Electrical Engineering, and Mechanical Engineering; PE

Shops supervisors; and TRRs. Employees must repeat the training every 24 months. There is an alternate Web-based course HS5955-W Suspect Counterfeit Item Awareness Training (SC/I) that employees can take that will satisfy the lecture course. This requirement must be met as soon as possible to enable supervisors to determine which of their employees need to take HS5954.

- HS5954 Suspect Counterfeit Item Training is an Organizational Training Requirement. Organization supervisors shall identify individuals who are to receive this training to assist in S/CI inspections and identification. Possible attendees should include procurement subcontract administrators

(buyers), construction inspectors, riggers and safety professionals. Personnel involved in equipment maintenance and operations, quality assurance, material receiving, facility operations, design and system engineering should also attend.

- HS5954 is a three-hour lecture class, required one time only. Supervisors determine which of their employees must take this class. This class is being provided by an outside vendor and will only be available on Jan. 11, 12 and 13. Students should enroll online or call Hazards Control Training at 2-0587. HS5954 also is an alternate course for HS5955 and will satisfy that training requirement.

NIF

Continued from page 1

injuries compared to the size of the workforce) stands at 0.8 — which is considered world-class. According to federal government data, the 2002 incidence rates of NIF-category work-related injuries and illnesses is 8.8 nationally. The state rate is 8.6.

Safety is a prime consideration in all NIF activities and is reflected in the project's safety slogan: "The Goal is Zero."

But George Stalnaker, NIF Programs safety manager, emphasized that slogans aren't responsible for creating injury-free workplaces. "That's not what makes it happen," he said.

The key, said Stalnaker, is building a culture that results in a "buy-in" from each individual, so all of them realize they directly control what happens to them.

For example, each work group meets daily before activities begin, for a detailed planning session of what they will be doing. They discuss possible hazards, changes in working conditions, safety considerations and teamwork. The purpose is to focus workers' attention on the job that faces them that day, not just overall safety.

Each week, NIF conducts on-site all-hands meetings to discuss safety concerns for the upcoming days and weeks.

Bob Ehrlich, NIF Programs Environmental Safety and Health (ES & H) manager explained that administrative procedures are important, but sometimes it helps to create built-in controls as safeguards.

Guardrails are installed wherever a fall could



JACQUELINE MCBRIDE/NEWSLINE

Avenue N repaving and landscaping in front of the National Ignition Facility is expected to be completed by the second week of January, weather permitting.

occur. Oxygen sensors monitor areas where hazardous gases are used. NIF has an extensive system of access control, requiring special training before workers can enter certain areas of the building. Instructors are not staff trainers, but instead, are the same line managers who supervise the workers.

During the summer, several workers suffered minor hand injuries. Managers quickly launched an awareness campaign to call attention to hand-related safety, including wearing gloves, different tools for various cutting tasks and the use of self-retracting knives. The result: no hand injuries occurred from July through October.

Rob Broderick, NIF Site operations manager, is responsible for ensuring the success of the overall safety program. He believes that accidents don't "just happen" — they are the result of prior action or inaction. Accidents can be prevented if supervisors and workers apply the five basic steps of

Integrated Safety Management (ISM). These include the important planning steps of defining the work, analyzing the hazards and developing the controls.

Because coordination between different work groups and areas in the facility is critical, work permits are required before any work activity can begin. "This process ensures that all work activities are properly reviewed, approved and released in accordance with the project schedule," he said. "It's a work planning process, and the permits are the tools to complete that process."

And most important, Broderick said, is that the workers themselves are involved in the safety program. "They understand that safety at NIF is designed to protect them. They participate in the safety meetings and provide excellent suggestions. Much of our safety improvement comes from the workers themselves. Everyone is involved including contractors, suppliers, and Lab organizations at all levels. Without this combined support our program would not be the success that it is."

Whenever procedures are not followed, systems malfunction, or accidents occur, they are promptly reviewed and analyzed to determine a root cause. The process is often time-consuming and difficult. But the reviews are always "process oriented," according to Broderick. "The objective is not to find fault but to improve our processes to prevent a reoccurrence of the event."

"Unless you do that, you're not learning from your mistakes, and you might make the same mistake again."

GENE DESERTS

Continued from page 1

humans, and thus may have no function in humans either.

In an effort to resolve the paradox and to help researchers more easily locate critical segments along the vast stretches of DNA deserts, scientists from the Laboratory, LBNL and Pennsylvania State University developed computational tools to decipher gene regulation by comparing the genomes of many different species.

When they used the tools to compare the human genome with the recently sequenced chicken genome, they discovered that gene deserts actually fall into two distinct categories: those that remain relatively stable throughout eons of evolution, and those that undergo significant variation.

Ivan Ovcharenko, a bioinformatics scientist in the Computation Directorate who led the study, said that many lines of evidence show that the stable desert regions, which are able to resist genomic rearrangement and fend off infringement by repetitive segments of junk DNA, are home to a surprisingly large fraction of the genome's non-coding regulatory elements.

"There are many indications that stable gene

deserts represent treasure boxes of multiple gene regulatory elements, guarding the proper complex function of the flanking genes," he said.

The variable regions, on the other hand — which make up about two-thirds of the gene deserts and as much as 20 percent of the entire three-billion-base-pair human genome — "can be devoid of biological function, suggesting that a significant fraction of the genome may not be essential.

"This information is very important for researchers looking for mutations leading to diseases," Ovcharenko said, "because it highlights large areas of the genome that are not likely to be involved in causing diseases."

JGI Director Eddy Rubin, a geneticist and physician who led the earlier studies indicating the presence of both functioning and non-functioning gene deserts, agreed. "If you're a gene hunter looking for genetic clues to diseases," he said, "it might be a good idea to steer clear of regions that are devoid of critical functions or importance," such as those that were deleted in the JGI-LBNL mouse experiments.

The gene desert research is among a number of studies published Thursday in *Genome Research* online and *Nature*, resulting from the public release of the chicken genome sequence earlier this year. LLNL

and JGI researchers, led by Lisa Stubbs in LLNL's Biology and Biotechnology Research Program and Susan Lucas at JGI, contributed to the *Nature* paper describing the primary sequence and comparative analysis of the chicken genome, along with Ovcharenko and Laurie Gordon of LLNL and Tijana Glavina and Andrea Aerts of JGI.

Stubbs and her team joined with JGI to compare human and chicken genomes in 2002 and focused on human chromosome 19, one of three chromosomes sequenced by JGI as DOE's contribution to the Human Genome Project. The LLNL/JGI team's high-quality sequence of parts of the chicken genome related to chromosome 19 was used in two of the papers published Thursday in *Nature*.

Participating with Ovcharenko in the gene desert study and in the development of a new sequence comparison tool called Mulan — shown to be instrumental in deciphering evolutionary clues by comparing multiple primate, mammalian and fish species with chicken — were Stubbs and Gabriela Loots of LLNL, Marcelo Nobrega of the Genomics Division at LBNL, and Ross Hardison, Webb Miller, Belinda Giardine, Minmei Hou and Jian Ma of Pennsylvania State University. The papers describing both projects will appear in the January print issue of *Genome Research*.

REFLECTIONS: *Live-trapping reptiles in the coastal sagescrub community, Site 300*

by Jim Woollett, wildlife biologist

Environmental studies of the air, water, and wildlife at LLNL involve the efforts of numerous programs and staff across the institution. Through the eyes and camera of LLNL wildlife biologist, Jim Woollett, this photo essay gives a rare look at one particular wildlife research project at Site 300. The following photos were collected during ongoing field activities investigating the effects of prescribed fire treatment on a unique California habitat — the coastal sagescrub — and its inhabitants. Coordinated with the assistance of the U.S. Fish and Wildlife Service, the project requires the live trapping (and release) of special reptile species that are of particular interest to land managers in this region. During the research, as seen in these photos, a diversity of wild animals are encountered.



The coastal sagescrub is a habitat found on steep-sided, rocky slopes with shrubs and grasses intermixed.



Trapping reptiles for study requires the right equipment: snake tongs and sheltered traps that provide cover from the extreme summer temperatures.



Even the rabbit slows down when ground temperatures exceed 110 degrees Fahrenheit.



Oh boy! Two rattlesnakes in one trap.



A juvenile skink is a small and shitty character to handle.



Tracking a lizard across the sand.



Red racers are normally too quick to photograph.



A longnose snake is known as a sharp-dressed reptile of the scrub.



Born a few weeks earlier, this glossy snake is hungry and looking for food.



These centipedes are best left alone.



You never know who may be watching you.



Deer herds find particularly nutritious forbs around sagescrub patches.



Beware of new e-mail threat

A new piece of malicious software is circulating throughout the Internet. It disguises itself as the Lycos anti-spam screensaver. This identity-stealing "Trojan" arrives as an e-mail attachment and uses key-logging to steal usernames, passwords, credit card details and e-mail addresses.

LLNL's Cyber Security Program advises employees to use caution when clicking on any attachment received in e-mail. You should not open attachments, especially during the holiday season, if you are not expecting them. Since many of these e-mail phishing scams and information stealing Trojans

forge the e-mail "From" address, you can no longer trust the attachment even though it appears to be from someone you know.

For the full story on this password stealing Trojan, go to: <http://news.zdnet.co.uk/internet/0,39020369,39179185,00.htm>

For some great ideas on "opt out" options, how to protect your personal information and how to maintain your privacy, go to: http://www.ftc.gov/privacy/privacyinitiatives/promises_educ.html

Have questions, need help?

For Cyber Security Program assistance, call 2-4655.



Newsline
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